

Listing of the Claims

1. (Original) A type 1 interferon (IFN) comprising antiviral, antineoplastic or immunomodulatory activity similar to a naturally occurring interferon, wherein said IFN has been circularly permuted or cyclized and has at least one modulated characteristic as compared to the naturally occurring interferon.
2. (Original) An IFN according to claim 1, wherein said IFN is circularly permuted.
3. (Original) An IFN according to claim 2, wherein said IFN is selected from the group consisting of: IFN-alpha, IFN-beta, IFN-kappa, IFN-omega and IFN-tau.
4. (Original) An IFN according to claim 3, wherein said IFN is IFN-beta.
5. (Previously Amended) An IFN according to claim 4, wherein said circularly permuted interferon is selected from Figure 1, SEQ ID NOS:35-49.
6. (Original) An IFN according to claim 3, wherein said IFN is IFN-alpha.
7. (Previously Amended) An IFN according to claim 5, wherein said circularly permuted interferon is selected from Figure 1, SEQ ID NOS:19-34.
8. (Original) An IFN according to claim 2, wherein said modulated characteristic is selected from the group consisting of: stability, solubility, activity, pharmacokinetics and immunogenicity.
9. (Original) An IFN according to claim 6, wherein said modulated characteristic is designed using a protein design computational program to achieve said characteristic.
10. (Original) An IFN according to claim 7, wherein said protein design computational program is PDA®.
11. (Original) An IFN according to claim 1, wherein said IFN is further chemically modified.
12. (Original) An IFN according to claim 9, wherein said chemical modification is glycosylation or PEGylation.
13. (Withdrawn) A recombinant nucleic acid encoding an IFN of claim 1.

14. (Withdrawn) An expression vector comprising the recombinant nucleic acid of claim 13.
15. (Withdrawn) A host cell comprising the recombinant nucleic acid of claim 13.
16. (Withdrawn) A host cell comprising the expression vector of claim 14.
17. (Withdrawn) A method of producing an IFN comprising culturing the host cell of claim 16 under conditions suitable for expression of said nucleic acid.
18. (Withdrawn) The method according to claim 17 further comprising recovering said IFN.
19. (Original) An IFN composition comprising a pharmaceutically acceptable carrier and an IFN of claim 1.